

What is a sleep EEG? (Child)

Information and advice for parents and children

Neurophysiology

What is a sleep EEG?

EEG is short for electroencephalogram. This is a recording of the electrical activity your brain produces all the time. It involves having small discs (electrodes) which record the activity attached to the scalp using paste. A sleep EEG is recorded while your child is awake and asleep.

There are three different types of sleep EEG recordings:

Baby sleep EEG - If your child is under 3 years old we will try to record the EEG during natural sleep. This makes the test even more useful in diagnosis. To help us achieve this please bring a dummy, bottle of milk, blanket or toy and do not let your child sleep before the test or on the way to the hospital.

Sleep Deprivation EEG - For this test your child will need to avoid sleeping or have as little sleep as possible the night before the test. We advise that the child should have no more than half their usual number of hours of sleep and should arrive tired. The amount of sleep your child can have will be detailed in the letter but please call us if you have any questions or concerns.

Sedation sleep EEG - On rare occasions your child's doctor may ask for a mild sedative (Melatonin) to be used to induce sleep or calm a child for an EEG. A single dose of Melatonin is unlikely to cause any side effects. If your doctor gives you the prescription please bring the medication with you to the EEG. We are unable to give the medication so will put it in a cup or syringe for you to give to your child. The medication does not have a taste so can be put in water. If your child cannot drink water please bring a drink with you. The medication is a powder and can also be mixed into a yogurt for you to give to your child. Melatonin does not act as a strong sedation and wears off after a couple of hours. It usually takes 20-30 minutes to work and your doctor may prescribe a second dose to give after 45 minutes. This is safe to do. Your child may not sleep even with the medication but may be more relaxed. We will ensure your child is awake before you leave.

Preparing your child for the sleep test

- Follow the instructions on your appointment letter for the amount of sleep your child can have before the test.
- If you have concerns about the amount of sleep that has been suggested your child should have, we advise you to contact the department and discuss this.

- If you don't feel that the appointment is at a suitable time of day for sleep i.e. you feel they are more likely to sleep in the afternoon, please contact us to rearrange.
- We will rub the head with some gel and put the electrodes onto the scalp using a white paste. To do this we need to part the hair and it should be clean and dry with no hair accessories or hair products such as oil, spray or gel in the hair.
- If your child's hair is very curly or afro-textured it may be easier to section it to allow easy access to the scalp.
- Please bring along anything you think might help them to sleep - dummies, milk, special blankets or toys to aid sleep.
- Do not let your child sleep before the test e.g. on the journey to the hospital
- Your child should eat within 1½ hours before your appointment as they are more likely to sleep if they feel full
- Avoid giving your child drinks with caffeine before the test
- Your child should continue to take any medicines as usual. Please bring a list of these with you to the appointment.
- Your child can drink up to the time of the recording starting.
- If your child is having a sedated sleep EEG please bring a drink with you if your child will not drink water, as melatonin is dissolved in this. It has no taste.
- Bring a comb or brush with you to tidy their hair after the test.

If you are unable to keep this appointment please contact us on 0121 507 4319 so that alternative arrangements can be made and the appointment can be given to another patient waiting for the test.

Before the test we will ask you if you have read and understood this information and whether you consent to go ahead with it. We will also answer any questions you have.

What are the benefits of a sleep EEG?

The main benefit of a sleep EEG is that it will help your doctor to diagnose whether there are any changes in brain activity when your child is awake and asleep. A sleep recording can be more sensitive than a standard EEG in providing this information. Your doctor will then be able to advise any appropriate treatment if required. Another benefit is a sleeping child will remain still which can improve the quality of the recording.

What are the risks of a sleep EEG?

There is a small chance that your child may experience some reddening of the skin or soreness where the paste is applied. There is a small risk that some of the activation techniques or sleep deprivation can provoke symptoms. In a few cases sleep deprivation can make some people's symptoms more frequent.

The risk of a sedated sleep EEG is that the effects of the sedation can last for several hours so your child may still be sleepy for a while after the test but this is not common and is not dangerous.

What are the risks of not having the test?

If your child does not have a sleep EEG, this may delay their doctor finding out what is causing their symptoms and starting treatment.

Are there any alternative tests?

There is usually no alternative to this test that will give your child's doctor the information they need.

During the test

Your appointment will take around 2 hours. This is what happens:

1. The person doing the test will start by measuring your child's head if they are cooperative.
2. They will then rub the scalp with a cotton bud and gel and stick some small discs to the head using a sticky paste. The discs are then connected to the EEG machine by wires.
3. The recording will be taken over 1½ hours while your child sits on your lap or lies on the bed, relaxing and trying to sleep.
4. If able to, they will be asked to follow commands such as "open/ close your eyes", or perform some of the following 'activation techniques' as these may produce changes in the brain wave activity:
 - **Deep breathing (Also called Hyperventilation)** - Your child will be asked to breathe deeply for 3 minutes. To help them do this they may be asked to blow a windmill. This can cause a light - headed feeling or tingling of the lips or fingers but this is normal and will resolve by itself afterwards.
 - **Photic Stimulation** - Your child will be asked to look at a bright flashing light with their eyes open and closed, for a few seconds at a time. This is an important part of the test for people who may have seizures or black-outs caused by flashing lights. We will be looking at the EEG at all times and will stop the light immediately if they appear sensitive. This is done under very controlled conditions.

As part of the test your child will also be video recorded as this can help to diagnose the condition; you will be asked to sign a consent form to allow this at the beginning of the test.

What will my child feel during the test?

Your child will feel a cold rubbing sensation on the scalp when the discs are being applied, but there are no sensations during the recording. Your child will not feel anything from the discs as we are just recording the brain activity as it is happening. No needles are involved.

After the test

After the test the discs will be removed with warm water. Your child's hair may be sticky and damp and some of the paste may be left in afterwards; this will wash out and you will probably need to wash their hair after the test.

If your child has been sleep deprived they will probably still feel sleepy after the test.

When will I get the results?

You won't get the results straight after the test as the EEG has to be analysed. A full report will be sent to the doctor who referred your child for the test after about 2 weeks and they will discuss this with you at their next outpatient appointment.

Contact details

You will be able to ask any questions or tell us any concerns before the test is carried out but if you would like to contact us before your appointment please call:

Neurophysiology

Tel: 0121 507 4319

Monday – Friday, 9am – 5pm

Further information

For more information about our hospitals and services please see our website www.swbh.nhs.uk, follow us on X @SWBHnhs and like us on Facebook www.facebook.com/SWBHnhs.

Sources used for the information in this leaflet

National Institute of Health and Care Excellence (2012). CG137 *The Epilepsies: the diagnosis and management of the epilepsies in adults and children in primary and secondary care*. Clinical guideline CG137 [Accessed] <https://www.nice.org.uk/guidance/cg137>

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